

REMARKS

Claims 1 and 3 have been amended. Claims 1 and 3 to 7 remain active in this application.

Claim 3 was rejected under 35 U.S.C. 112, second paragraph, as being indefinite. The examiner is correct and the claim has been amended to accurately state what is in the specification as originally filed.

It should initially be understood that the thrust of the present invention is to do just the opposite of what has been done in the prior art, namely to have a multigas etchant wherein the gas with high C/F ratio forms more than one half of the multigas etchant. In each of the cited references, either the reverse is true or the ratio is 1:1. This fact is clearly set forth in the paragraph on page 4, lines 9 to 12 as well as lines 18ff. This fact is more clearly set forth in the claims as amended.

Claims 1 and 4 were rejected under 35 U.S.C. 102(b) as being anticipated by Yanagida (U.S. 5,338,399). The rejection is respectfully traversed.

As previously stated, claim 1 requires, among other steps, the step of providing a gas etchant comprising a mixed gas of two different fluorocarbon gases, one of the fluorocarbon gases having a low C/F ratio and the other of said gases having a high C/F ratio, the fluorocarbon gas having the higher ratio of carbon atoms to fluorine atoms forming more than one half of the mixed gas. No such step is taught or even remotely suggested by Yanagida taken alone or in the total combination as claimed. The specification of the subject application clearly states at page 4, lines 9 to 12, that "the present inventors satisfactorily solved the problems of the prior art by adding a small quantity of CHF₃ (low C/F ratio gas) to C₄F₈/Ar/O₂ (high C/F ratio gas) and discovered that the purpose of this invention could be realized, and they arrived at this

invention". On the other hand, Yanagida clearly states at Example 6 in column 11 at line 14ff that "C₃F₈ having a lower C/F ratio was used as a main component of the etching gas".

It should be noted that in CHF₃ the ratio of C to F is 1 to 3 where as in C₄H₈ the ratio of C to H is 1 to 2. Accordingly the CHF₃ has a lower ratio of C to F than does the C₄H₈. With reference to the portions of Yanagida referred to by the examiner, the portion at column 11, ones 5 to 20 clearly states at lines 5ff that the mixed gas is composed mainly of the lower C/F ratio gas, C₃F₈ and lines 38 to 43 requires equal amounts of the two gases.

Claim 4 depends from claim 1 and therefore define patentably over Yanagida for at least the reasons presented above with reference to claim 1.

In addition, claim 4 further limits claim 1 by requiring that the insulating layer be plasma-etched with the mixed gas of fluorocarbon gases. No such step is taught or even remotely suggested by Arleo in the total combination as claimed.

Claim 1 was rejected under 35 U.S.C. 102(e) as being anticipated by Nguyen et al. (U.S. 6,001,699). The rejection is respectfully traversed.

As clearly stated in the ABSTRACT of Nguyen, the ration of the low C/F to high C/F gas is from 1:1 to 3:1, this being out of the range claimed as noted above.

Claims 5 to 7 were rejected under 35 U.S.C. 103(a) as being unpatentable over Yanagida in view of Mizuhara et al. (U.S. 5,898,221). The rejection is respectfully traversed.

Claims 5 to 7 depend from claim 1 and therefore define over the applied references for at least the reasons presented above with reference to claim 1 since Mizuhara et al. fails to overcome the deficiencies in Yanagida as noted above.

In view of the above remarks, favorable reconsideration and allowance are respectfully requested.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'J. Cantor', with a stylized flourish at the end.

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